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ABSTRACT

The fundamental question to which most clients want and deserve an answer is, "Am I going to get better (as a result of counseling)?" Although meta-analyses provide strong evidence supporting the efficacy of counseling in general, if one wants to make probabilistic statements about individual client outcomes--rather than about the more generalized outcome of counseling--a different approach is needed. Using clients' intake (pre-counseling) and post-counseling ratings of common problems derived from a multi-center database, a stepwise logistic regression analysis was used to predict client improvement (or lack thereof) using a variety of intake measures and demographic markers--information that a counselor meeting a client for the first time would have available for deriving an outcome prediction. Results suggest that the greater a client's presenting symptom and interpersonal distress, the more likely the client is contemplating and is ready for change. If the client had not previously been in counseling, there is a greater likelihood that the client would improve or benefit from counseling. (Contains 5 tables, 3 graphs, and 19 references.) (Author/MKA)

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Running head: PREDICTING CLIENT IMPROVEMENT

Predicting Improvement Among University Counseling Center Clients

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Paper presented at the annual meeting of the American Educational Research Association, April, 2000, New Orleans, LA

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Abstract

The fundamental question to which most clients want and deserve an answer is, "Am I going to get better (as a result of counseling)?" Although meta-analyses provide strong evidence supporting the efficacy of counseling in general, if one wants to make probabilistic statements about individual client outcomes—rather than about the more generalized outcome of counseling—a different approach is needed. Using clients' intake (pre-counseling) and post-counseling ratings of common problems derived from a multi-center database, a stepwise logistic regression analysis was used to predict client improvement (or lack thereof) using a variety of intake measures and demographic markers—information that a counselor meeting a client for the first time would have available for deriving an outcome prediction. Our results suggest that the greater a client's presenting symptom and interpersonal distress, the more the client was contemplating and ready for change, and the if the client had not previously been a client in counseling, the greater the likelihood that the client would improve or benefit from counseling.

Predicting Improvement Among University Counseling Center Clients

Counseling clients can be viewed as consumers who have the need and a right to know the benefits they will receive from counseling. Although clients may frame the question in various ways, we believe that the fundamental question to which most clients want and deserve an answer is, "Am I going to get better (as a result of counseling)?" In order to answer such questions, counselors need their own answers to questions regarding "What kinds of outcomes are likely with want types of clients?" For both clients and counselors, the answers to these questions must be probabilistic in nature, communicating the likelihood of improvement or the likelihoods of various degrees of improvement.

When considering counseling outcome, counselors are have been admonished to attend to characteristics of the client and the counselor, the type of counseling, and the nature of the outcome sought (e.g., Beutler & Clarkin, 1990; Kiesler, 1966; Paul, 1967). In this regard, counseling researchers have proceeded in their efforts by researching a few variables, some considered at only a few levels, and then analyzing the gathered data by postulating (at least implicitly) rudimentary models of the counseling effect.

A reasonable indicator of how a particular client will do in counseling could be based on the outcomes of similar clients. But if counseling outcome varies as a function of client characteristics, then there must be sufficient outcome data on each type of client to make a reliable statement about client improvement.

One way to accomplish this is to aggregate the mean differences found across individual outcome studies and submit them to meta-analyses (e.g., see Smith, Glass & Miller, 1980). But

while the effect size found in such meta-analyses usually provides strong justification that counseling is effective (which is important for the profession), the simple probabilistic statements deriving from the effect size provide a questionable basis for an individual client to decided whether or not to pursue counseling or for a counselor to assume that his or her work with a particular client will be effective.

In this regard, Hummel and Lichtenberg (1999) noted that although it is not the primary purpose of meta-analyses to make probabilistic statements regarding a client's likelihood of improvement as a result of counseling, doing so is not uncommon. Within reports on their studies, investigators frequently are found to present figures of overlapping normal distributions (one representing clients who received counseling and the other representing those in the control population). They then point out (by way of example) that a person at the mean of the treated population fell at the 75th percentile of the control group—deducing that the probability is 0.75 of an individual randomly drawn from the treated population being above the mean of the control population. (Note: Given the symmetry of the normal distribution, if the mean of those treated falls at the 75th percentile of the control population, then the mean of the control population must fall at the 25th percentile of the treated population. Therefore, 75% of those treated must fall above the mean of the control population.)

But it would be incorrect to assume that such a figure is synonymous with the probability that a <u>particular</u> client will show improvement, and in their paper, Hummel and Lichtenberg (1999) explored the limits of meta-analysis as a basis for this sort of justification of individual counseling interventions. They concluded the while meta-analyses can (and usually do) provide strong justification for the profession, if one wants to make probabilistic statements

about individual client outcomes—rather than about the more generalized outcome of counseling—one has to take a different approach.

In the Discussion section of their paper, Hummel and Lichtenberg noted that in principle there is no reason why client outcome data cannot be aggregated across collection sites (e.g., counseling centers), rather than across studies, in order to accumulate sufficient outcome data on each type of client in order to make reliable statements about client improvement. They commented that if sites/centers would standardize descriptions of counselors, treatments, clients (and client problems), and outcomes, they could cooperate in development and maintenance of a large database of client outcomes and use these data to provide clients and counselors with accurate probabilities for various outcomes.

The current study was an initial step in using a large counseling center database to estimate the likelihood of individual client improvement. The objective of the study was to predict client improvement as a function of pre-counseling symptom patterns, stage of readiness for change (in counseling), age, gender, race/ethnicity, academic standing (GPA), medication status, and previous experience as a client.

Method

Participants

Participants in this study were 1299 counseling clients seen at 38 different U.S. college and university counseling centers. The participants were a sub-sample of 4679 clients participating in a nationwide study of college and university counseling centers conducted by the Research Consortium of Counseling and Psychological Services in Higher Education. The 1299 clients whose data were analyzed were those clients on whom complete data were available. Of our sample, one third were male and two-thirds were female. The majority (77%) of clients were

Caucasian. Other racial/ethnic groups were included in the sample of client participants in the following proportions: Black/African American, 4%; Hispanic, 9%; Asian, 5%, Native American, <1%; International, 4%. The age of the clients ranged from 16 to 60 (M=23.01, SD=5.4). Forty-nine percent of the clients previously had been in counseling, and 7% were currently on medication.

The counselors who saw the 1299 clients included practicum students, interns, and professional staff of the centers. General demographic information on the counselors was made available to us in a previous report on the consortium's work (Draper, Jennings, Baron, Erdur, & Shankar, 1999). The counselors (N=approx. 260) are described as representing a variety of fields, although most were counseling psychologists. They represented diverse ethnic backgrounds, although most were Caucasian. The majority were female, although a significant minority of the counselors were male. Approximately half of the counselors were student trainees, the majority of whom were counseling center interns, although a significant minority were practicum students.

Instruments

Outcome Questionnaire-45 (version 2) (OQ-45; Lambert, Hanse, Umpress, Lunnen, Okiishi, Burglingame, & Reisinger, 1999). Pre- and post-counseling data were derived from the Outcome Questionnaire-45. The OQ-45 is an instrument designed to measure client progress in therapy along three dimensions conceptualized by Lambert (1983) as important aspects of an client's life: (a) subjective discomfort (i.e., how a person feels inside), (b) interpersonal relationships (i.e., how a person gets along with significant others), and (c) social role performance (i.e., how they manage in important life tasks such as work and school).

The OQ-45 provides a total score and three individual domain scores. Each item on the questionnaire is scored on a five-point Likert scale (range 0-4), with some items scored in the reverse. The Symptom Distress score (SD) consists of 25 items and has a score range of 0-100. The Interpersonal Relations score (IR) consists of 11 items and has a score range of 0-44. The Social Role scale (SR) consists of 9 items and has score range of 0-36. Clinical cutoff scores have been established, with Total scores of 63 or greater, Symptom Distress scores of 36 or greater, Interpersonal Relation scores of 15 or greater, and Social Role scores of 12 or greater reflecting clinical levels of distress. Lambert and his colleagues have found no gender or racial differences on the OQ-45, suggesting that the OQ-45 does not over- or underpathologize any particular gender or racial group. Test-retest reliabilities for the OQ-45 range from a low of .78 for the Symptom Distress scale to .84 for the OQ-45 Total score (N=157; the retest time interval was not stated in the instrument's manual). Internal consistency coefficients (coefficient alpha) for the scales ranged from .70 for the Social Role scale to .93 for the Total score (N=157). The concurrent validity of the OQ-45 has been estimated by correlating the scores of the instrument with the SCL-90-R (Derogatis, 1977). Notably, the OQ-45 Total score and the OQ-45 Symptom Distress score have been found to correlate highly with the General Severity Index (GSI) of the SCL-90-R (.78 and .82, respectively) for college counseling center clients. These results suggest considerable overlap between these indices of client symptomatic complaints.

Stages of Change Scale (SCS; McConnaughy, Prochaska & Velcier, 1983). The Stages of Change Scale (SCS) is designed to assess clients' readiness for change and their readiness to enter into and benefit from counseling. The scale assesses clients in terms of Prochaska's stages of change—stages at which clients might enter and begin counseling. Each stage is measured by eight Likert-type items. The first stage, Precontemplation, characterizes clients that are not

choosing to change themselves. The second stage, Contemplation, characterizes clients who are aware of problems and may wonder whether counseling would be helpful to them. The third stage, Decision Making, characterizes clients who have defined their problems and made a commitment to change. The fourth stage, Action, characterizes clients who are actively working on their problem(s) or concern(s). A final stage, Maintenance, characterizes clients who are at the point of consolidating any changes they may have made in counseling. The authors report adequate reliability and validity evidenced over numerous studies. (Note: Although Prochaska's stages model includes five stages, the SCS data only included scale information for the Precontemplation, Contemplation, Action and Maintenance stages; absent is the Decision Making stage.)

Procedure

The data for this study were provided by the Research Consortium of Counseling and Psychological Services in Higher Education, which was established in 1990 to further research efforts on the practices of college and university counseling centers and the concerns of their clients. As noted above, the data analyzed in present study represent a subset of those data collected by the consortium. These data were collected over the period of 1997 and 1998.

Participating clients completed the OQ-45 and SCS prior to their initial intake appointment with their individual counselor. Although the OQ-45 was readministered throughout the course of counseling, only the clients' initial OQ-45 and their final OQ-45, completed at termination, were used to assess counseling outcome.

A client's outcome status, our dependent variable, was defined in terms of client change on the combined OQ-45 Total scale. Each client's pre-counseling score was subtracted from his or her score at termination. If the resulting score was negative, it indicated improvement in that

that the client had fewer problems at the conclusion of counseling. This "improved" outcome status was coded 1. Clients with positive scores indicated an increase in problems at the conclusion of counseling and were considered "unimproved" (and possibly "deteriorated"). This outcome was coded 0.

Our independent (predictor and indicator) variables were a client's (a) age, (b) gender, (c) race/ethnicity, (d) GPA, (e) history of previous counseling (no, yes), (f) current medication status (not using/using), intake scores on the OQ-45 (g) Symptom Distress, (h) Interpersonal Relationships and (i) Social Roles subscales, and intake scores on the (j) Precontemplation, (k) Contemplation, (l) Action, and (m) Maintenance subscales of the SCS. Although the database made available to us included numerous other measures, we selected for inclusion in our analyses only those variables within the database that a counselor reasonably would know or have available at the time of the initial meeting with a client.

Analyses

Three analyses were run. The first was a preliminary logistic regression entering each of the independent variables simultaneously as a block. This analysis (similar in intent to running an overall ANOVA) was run in order to demonstrate to us that our variable set predicted significantly the outcome status of the clients. The second analysis was a stepwise logistic regression, using the same variable set—with each variable entering the final equation on basis of its unique contribution to the prediction of client outcome status. Our final analysis was a logistic regression using only those predictor variables that were found to contribute significantly to the prediction of outcome status in our second analysis.

Results

Table 1 summarizes the means and standard deviations for the OQ-45 and SCS subscales and for the intake-termination difference on the OQ-45 Total scale. The mean scores for each of the OQ-45 subscales were above the clinical level specified in the instrument's manual. The mean difference between the intake OQ-45 and the termination OQ-45 was positive, suggesting a general increase in client distress.

Table 1

Descriptive Statistics for the OQ-45 and Stages of Change Scale Subscales and for the OQ-45 Intake-Termination Change in Client Distress(N=1299)

Scale	M	SD
Symptom Distress	41.19	16.39
Interpersonal Relationships	16.36	6.92
Social Roles	13.66	4.99
Termination-Intake (OQ-45 Total)	.69	.46
Precontemplation	13.87	4.07
Contemplation	34.55	3.68
Action	29.75	4.94
Maintenance	25.68	6.16

Results of our preliminary logistic regression analysis confirmed that our independent variable set was a significant predictor of client outcome status, $\chi^2(17) = 160.18$, $p<.001$. Table 2 summarizes the results of that analysis.

Table 2

Summary of Logistic Regress Analysis Predicting Counseling Outcome with All Predictor Variables Entered as a Block (N=1299)

Variable	B	SE	Wald	df	p
Age	-.0094	.012	.587	1	.444
Sex	.198	.140	1.996	1	.158
Ethnicity			1.424	5	.922
African American	-.118	.446	.070	1	.791
Asian American	-.085	.430	.039	1	.844
Hispanic American	.187	.391	.228	1	.633
Native American	-.176	.950	.034	1	.853
Caucasian	-.104	.321	.105	1	.746
GPA	-.028	.093	.094	1	.760
Previous Counseling	-.253	.138	3.365	1	.067
Current Medication	-.360	.254	2.013	1	.156
Symptom Distress	.032	.006	26.204	1	.000
Interpersonal Relationships	.037	.012	9.668	1	.002
Social Roles	.013	.018	.532	1	.466
Precontemplation	-.008	.018	.184	1	.668
Contemplation	.043	.022	3.660	1	.056
Action	.007	.017	.187	1	.666
Maintenance	-.006	.013	.231	1	.631
Constant	-2.403	1.029	5.456	1	.020

χ^2 (17) = 160.18, p<.001

In our stepwise logistic regression, the first predictor variable to enter the equation was the client's level of symptom distress at intake (OQ-45, Symptom Distress), χ^2 (1) = 128.38, p<.001. The second variable to enter the equation was the client's SCS Contemplation score at intake, χ^2 (1) =9.59, p=.002. The third variable to enter the equation was the client's quality of

interpersonal relationships (OQ-45, Interpersonal Relationships scale), χ^2 (1) = 8.64, p=.003. The fourth variable to enter the equation was the client's previous experience in counseling, χ^2 (1) = 6.19, p=.013. The overall χ^2 for the equation was χ^2 (4) = 152.80, p<.001. Table 3 summarizes the final logistic regression equation.

Table 3

Summary of Stepwise Logistic Regression Analysis Predicting Counseling Outcome (N=1299)

Variable	B	SE	Wald	df	p
Previous counseling	-.319	.129	6.153	1	.013
Symptom Distress	.035	.005	46.365	1	.000
Interpersonal Relationships	.036	.012	9.410	1	.002
Contemplation of Change	.051	.018	8.190	1	.004
Constant	-.680	.610	19.286	1	.000

χ^2 (4) = 152.80, p<.001

In our final analysis, we entered as a block those four predictors that had been found to contribute significantly to outcome status in our second logistic regression (previous counseling, Symptom Distress, Interpersonal Relationships, and Contemplation of Change). By selecting only these variables, we were able to include in our analysis an additional 512 clients from the consortium' database—individuals on whom data on one of more of the other predictor variables had been missing. The addition of these 512 clients did not significantly affect the demographics of the sample. The result of this analysis yielded a χ^2 (4) = 211.81, p<.001. Table 4 summarizes the results of this analysis.

Table 4

Summary of Logistic Regression Analysis on Selected Predictor Variables (N=1811)

Variable	B	SE	Wald	df	p
Previous counseling	-.304	.107	8.003	1	.005
Symptom Distress	.035	.004	70.112	1	.000
Interpersonal Relationships	.030	.010	9.618	1	.002
Contemplation of Change	.055	.015	14.481	1	.000
Constant	-2.855	.502	32.312	1	.000

χ^2 (4) = 211.81, $p<.001$

Discussion

As data are collected within and across counseling settings, providers of counseling services will learn more about what interventions work for what kinds of clients under naturalistic counseling conditions and will be better able to provide client consumers with the information they need before deciding whether or not to enter into counseling—information that we believe needs to include a response to the question, "Am I going to get better?" A response to this question necessarily must be probabilistic. Counseling centers, like other behavioral healthcare settings, need to be able to meet the primary goals of health care, namely, to help the client when possible and to do no harm (Eisen & Dickey, 1996; Lyons, Howard, O'Mahoney & Lish, 1997; Ogles, Lambert & Masters, 1996; Sederer, Dickey & Hermann, 1996). Meeting these goals requires being able to establish and communicate realistic probabilities for various counseling outcomes for the individual clients that are seen by their counseling staff so that these clients can make informed decisions about entering into counseling. Minimally, clients need and deserve to know whether they (individually) are likely to improve.

The present study was an exploratory study—a model fitting exercise—in which we examined the efficiency of a number of client status variables to predict client outcome status in counseling. The variables included in the study were among those variables within a large multi-site counseling center database that a counselor reasonably would know or have available at the time of the initial meeting with a client. They included the clients' self-report of symptomatic, interpersonal and social role distress, whether or not they had previously received counseling, whether or not they were currently on medication, and the clients' stage of readiness for change. Other client-descriptive variables included the clients' age, gender, ethnicity and GPA.

The results of the our analyses suggest that previous experience as a client, readiness to change, and level of symptomatic and interpersonal distress were significant predictors of outcome status. Specifically, clients who reported greater levels of distress and a greater readiness to change and who had not previously been in counseling were those most likely to improve in counseling (i.e., show a greater overall reduction in self-reported symptoms and distress).

Previous research would suggest that subjective discomfort (symptomatic and interpersonal distress) can be a significant motivator for change (e.g., Garfield, 1978, 1986, 1994). Coupled with a positive and prospective (contemplative) attitude toward change, it seems understandable that these variables would be found to be significant predictors of outcome status. That prior experience as a client was inversely related to outcome was initially confusing to us but may be related to or reflective of something characterological about the client (e.g., poor or limited problem-solving skills) or the chronicity or intractability of the clients' problem(s)—either of which might be an indicator of a probably negative outcome or failure to benefit from counseling.

That the remaining intake variables in the data set did not enter our analysis as significant predictors of outcome may be telling. In particular, client gender and race/ethnicity are two variables that are frequently proposed and examined as possible indices of (and moderators of) differential responsiveness to counseling (e.g., Atkinson & Thompson, 1992; Garfield, 1978, 1986, 1994; Highlen & Hill, 1984). And in this regard, a common criticism of efforts toward the identification and dissemination of "empirically validated treatments" and the establishment of "prescriptive interventions" is that the research supporting these interventions generally has been insensitive to gender and racial/cultural differences (Quintana & Atkinson, 1999). Historically, however, client gender and race/ethnicity have been shown to have little impact on counseling outcome (i.e., they have proven to be poor indicators of outcome), and again this was a finding in this multi-site study.

The use of logistic regression to model counseling outcome and to derive probability estimates for various outcomes for individual clients is demonstrated in the following. Implementing the model within an EXCEL spreadsheet, one can select or enter individual client values for each of the predictors in order to estimate the probability of a successful ("improved") outcome for that client. Table 5 presents several examples of how adjustments in values for the predictor variables lead to different outcome predictions. The first row gives the outcome probabilities for a client who has previously been a counseling client and who scores at the scale mean for each of the three predictor scales. The second row provides the same information for a client who has not previously been a client but who scores at the mean for each of the three predictor scales. The third row represents a worst-case scenario—the situation in which a client who has previously been seen in counseling enters counseling with the lowest possible scores on the three predictor variables. The final row of the table represents a best-case scenario in which

a person new to counseling enters counseling in maximum symptomatic and interpersonal distress and maximum readiness to change.

Table 5

Predictions of Counseling Outcome Based on Various Predictor Variable Values

Predictor Variable				Outcome	
Previous Counseling	Symptom Distress	Interpersonal Distress	Contemplation of Change	Improved	Unimproved
yes	mean[1]	mean[1]	mean[1]	.66	.34
no	mean[1]	mean[1]	mean[1]	.72	.28
yes	min.[2]	min.[2]	min.[2]	.06	.94
no	max.[3]	max.[3]	max.[3]	>.99	<.01

[1] mean scale value [2] minimum scale value [3] maximum scale value

Of course a variety of scores is obtainable on each of the measures, and the probabilities presented in Table 5 are not necessarily representative of any actual client. But by selecting the appropriate value for each of the predictors for a given client, the probability of improvement for that client can be estimated. Figures 1 through 3 are "snapshots" of the EXCEL spreadsheet form that was designed so that client-specific values could be entered into the logisitic regression model identified in this study in order to estimate individual client probabilities of an "improved" status upon completion of counseling. By adjusting the values for each of the four predictor variables one can graphically see how outcome status probabilities change.

Acknowledgement

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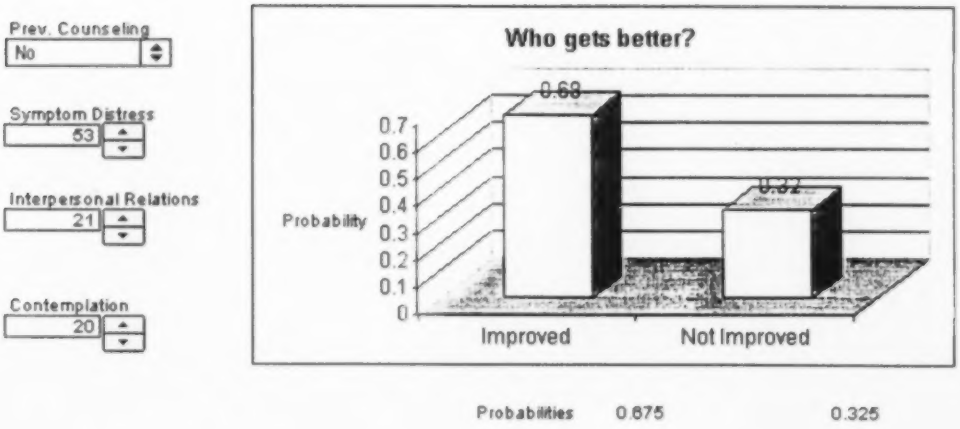

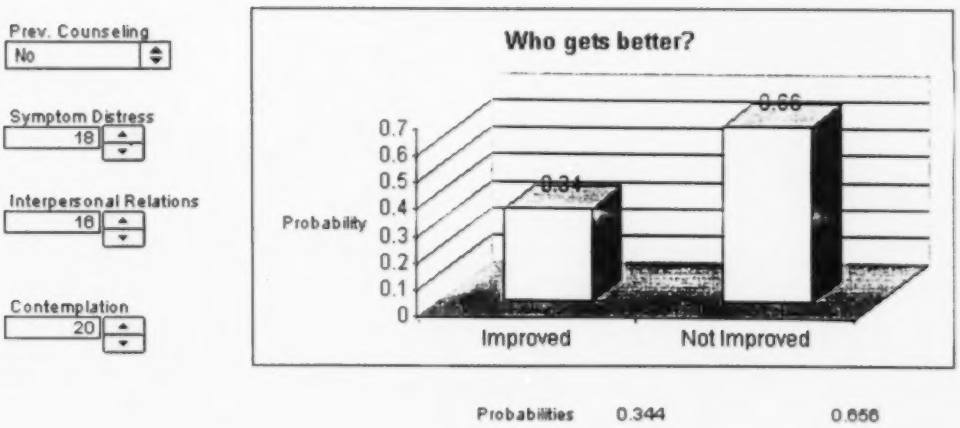

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Prev. Counseling
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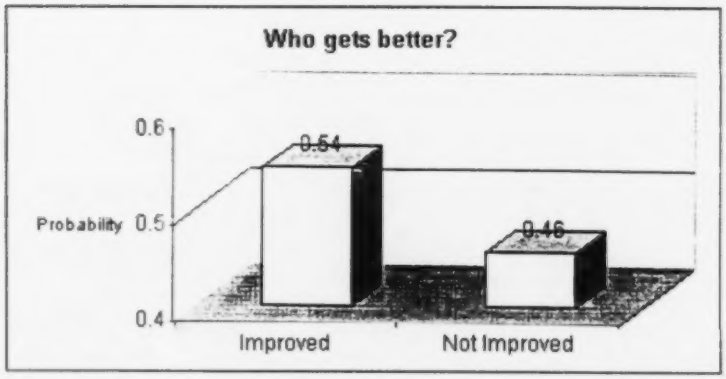
37

Interpersonal Relations
22

Contemplation
25



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May 2, 2000

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Enclosed please find two (2) of the manuscript, "Predicting Improvement Among University Counseling Center Clients," which was presented by Thomas J. Hummel and myself at the most recent AERA annual meeting in New Orleans. I apologize for neglecting to drop off a copy of the paper at the AERA booth while at the conference.

My co-author and I look forward to hearing from you regarding the disposition of our manuscript.

Thank you.

James W. Lichtenberg, Ph.D.
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